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June 3, 2011

M/T FIDIAS
Final Environmental Audit
Piraeus, Greece – Venice, Italy
May 22 – 25, 2011

Preliminary

The undersigned conducted a Final Environmental Audit aboard the M/T FIDIAS, while the vessel was at anchor off of Piraeus and underway to Venice, Italy. The vessel underwent an ongoing audit June 7 and 8, 2010.

The FIDIAS is an Oil/Chemical tanker of 30,004 GRT, built by STX Ship building, Jinhae shipyard in the Republic of South Korea. The vessel was delivered to its present owners and managers on June 29th, 2007. The vessel is powered by a B&W six-cylinder main engine of 9490 KW. The vessel has twelve cargo tanks with a total capacity of 53205.26 m³ and port and starboard slop tanks with capacities of 713.643 m³ and 720.777 m³ respectively. Complete vessel particulars are attached¹.

Audit participants² included:

Georgios Birmpilopoulos, Master
Ilias Simoudis, Chief Engineer
Lawrence Loay, Chief Officer
Rolly Defante, Second Engineer
Tirso Geolin, Third Engineer
Bartolome Aborde., Fourth Engineer
Palermo Encarnacion, Electrician
Rico Piensenabis, Pumpman

In addition to the above, various crewmembers from all departments were interviewed at different times with regard to their duties related to environmental aspects of ship operation and awareness.

The opening meeting was delayed until 23 May 2011 while the DNV annual survey was completed.



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The schedule of the final audit was as follows:

22-May-11

9:30		Arrived onboard offshore Piraeus
10:00	10:15	Coffee break
10:15	12:00	Review documents, logs and records
12:00	13:00	Lunch
13:00	15:00	Review documents, logs and records
15:00	15:15	Coffee Break
15:15	17:00	Review documents, logs and records
17:00	18:00	Evening meal
18:00	20:00	On bridge for departure, reviewed hand over notes.
20:00		Rest overnight

23-May-11

8:00	8:15	Opening meeting
8:15	9:15	Review Audits, SOPEP, VRP and Drills, Training and Familiarization. Carry out discussions with Master and C/O.
9:15	10:00	Review Garbage Management, Galley inspection, inspect garbage stowage and segregation, Hazardous Waste practices, storage and collection. Carry out discussions with C/O.
10:00	10:15	Coffee break
10:15	11:00	Review Sounding Log, Oil Transfer Procedures. Carry out discussions with C/E.
11:00	12:00	Examine standard discharge connection, overflow discharge containment, MARPOL equipment, deck walk. Carry out discussions with C/O, Bosun and pump man.
12:00	13:00	Lunch
13:00	15:00	Examine Engine room, inspection of operating machinery, pumps, etc, Oily Water Separator, incinerator
15:00	15:15	Coffee break
15:15	17:00	Review Bilge Water Management, Sewage Waste Stream, Purifiers. Carry out discussions with C/E, 2/E, 4/E.
17:00	18:00	Dinner
18:00	20:00	Review documents, logs and records

24-May-11

8:00	10:00	Review Ballast Water Management. Carry out discussions with C/O and 2/O.
10:00	10:15	Coffee break
10:15	12:00	Review Seal Management Program. Carry out discussions with



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		Master, C/O and C/E.
12:00	13:00	Lunch
13:00	14:00	Witness ODME test. Carry out discussions with C/O.
14:00	15:00	Review Oil to Sea Interfaces, Review flexible hoses and pollution equipment records. Carry out discussions with C/O and C/E.
15:00	15:15	Coffee break
15:15	17:00	Review Port State Control Exams and recycling program. Carry out discussions with Master and C/O.
17:00	18:00	Dinner
18:30	20:00	Review documents, logs records, etc.

25-May-11

08:00	10:00	Review SWOMS, EEOI monitoring, Review soundings of tanks against Enviro Logger, examine OWS overboard piping. Carryout discussions with C/E, 2/E, 4/E and electrician.
10:00	10:15	Coffee break
10:15	12:00	Review Fleet engineering surveys
12:00	13:00	Lunch
13:00	14:00	Out brief
19:40		Departed vessel

The audit was conducted in accordance with Attachment A, Section B of the Special Master Appointment and Scope of Work pursuant to the criminal case, United States of America v. Ionia Management S. A., Criminal No.3: CR134 (JBA). The audit process consisted of a review of Safety Management System (SMS) and Environmental Management System (EMS) documents; records and procedures related to environmental matters; MARPOL required logs and records; inspection and testing of vessel waste handling equipment, including the oily water separator (OWS), incinerator, sewage treatment plant (STP); and interviews with vessel personnel.

To implement the EMS, Ionia Management has developed an Environmental Management Manual (EMM), which has been placed aboard. The EMM contains environmental policies and procedures in alignment with the Scope of Work, as well as additional environmental procedures, developed by Ionia Management. In addition, environmental procedures are also contained in the vessel's SMS Manual. Ionia Management certification for ISO 14001/2004, DNV certificate No. 24257-2008-AQ-HRV-RvA, issued on April 08, 2008 expired on April 08, 2011. According to the Master, the survey to renew the certification has been completed and recertification pending.

Overall, I found the environmental procedures and requirements to be well implemented. I found the officers and crew to be very cooperative and positive throughout the audit. Senior officers, including the Master, C/E. and C/O were knowledgeable of the Scope of Work requirements and the EMM appeared fully committed to the purpose and philosophy of the



EMM. This was clearly demonstrated throughout my audit and during discussions with these officers.

Following are my observations and comments. They are supported by the attached EMS Audit Checklist³, photos⁴ and the enclosures to this report. The observations are separated into two categories - those with recommendations and those without. As noted below, some of recommendations were completed prior to my departure from the vessel. The second category of Observations is primarily included in the audit report to provide an understanding of the functionality of the EMS aboard.

Observations with Recommendations

1. Attachment B of the Scope of Work and EMM 5.4 and 5.5 details the labeling of the cross over valves and the emergency bilge suctions. The labels are not correct. The port forward emergency bilge suction is labeled as a crossover valve. Recommend that the crossover valves and the emergency bilge suctions be labeled in accordance with the order and the EMM. Prior to the completion of the audit, the valve was relabeled.
2. Section 13.3 of the EMM requires that a copy of the Special Master's Appointment and Scope of Work shall be maintained onboard the vessel at the following locations: Master's Office, Chief Engineer's Office, Engine Control Room and Bridge. Section X of the Scope of Work includes the quarters of the Master and Chief Engineer, as well as in the engine control room and on the bridge. The Special Master's Appointment and Scope of Work was not on the Bridge, however a copy for the Bridge was provided prior to my departure. Section 1.3 of the EMS requires that the company policies shall be clearly posted at the Master's Office, Chief Engineer's Office, Bridge, CCR, ECR, Officer Mess room and Crew mess room. The CCM name and contact details were neither in the officers mess nor the crews mess however were posted prior to my departure.
3. Oil Record Books Part I (ORB) from the vessel delivery in 2007 until present were reviewed. Some entries in the Oil Record Book (ORB) are heavily overwritten and not properly corrected. Recommend that corrections be made with a single line through the mistaken entry so that it can still be read, the correct entry made and accompanied with the signature of the person making the correction.
4. The Master's handover report Form ENV 023A⁵ dated 29 November 2010 lists in block 19 that the Oil Content Meter has not been calibrated and in block 20 that the ODME has not been calibrated. That is not correct, the OCM and ODME were in calibration at the time of the handover. Looking back at previous Masters records, I noted that the entries are identical and it is likely that a previous error was copied forward at relief.

EMS 4.2 requires that the C/E's handover notes include an environmental component and description of the former and current status of operation, maintenance, and repair, for the Incinerator, OWS and other pollution prevention procedures or equipment, the status of spare parts for this equipment, and an accurate estimation of the day-to-day bilge loads and accumulations. Paragraph nine of the most recent Chief Engineer Hand



Over Report⁶ "List available instruction manuals related to pollution prevention equipment" is blank; however, the instruction manuals are onboard. There are no spare parts listed in paragraph 10 for the sewage plant or the ODME; however the spare parts for both those systems are on board. Additionally there is no estimation of the day-to-day bilge loads and accumulations.

To provide the crewmember's successor with key knowledge and information regarding their position so that the transition period is as short and smooth as possible recommend that the hand over notes be completed in accordance with the EMS.

5. Lubricant bunker volume in the Oil Record Book Part I⁷ is recorded in liters vice metric tons as required by MARPOL and by the EMM 9.5. Recommend that lubricants bunkers be recorded in metric tons vice liters. Prior to my departure, the C/E corrected the units with a late entry.
6. Samples were taken in accordance with the Scope of Work during the ongoing audit and forwarded to NAIAS Scientific. Test results from NAIAS were onboard; however, verification from the oily water separator manufacturer that the oily water separator is capable of processing fluids having this content was not available.
7. The incinerator capacity listed on the Supplement to the IOPP Certificate⁸ is 49.9 Kg/hour. Review of the technical data contained in the manufacturer's manual indicates this value is 38 Kg/hour. Recommend that the accuracy of the Supplement to the IOPP Certificate be verified by Class during the next occasion of their visit to the vessel. This was noted as a deficiency during another audit.
8. The Master maintains a Spare Seal Inventory Log⁹, and an Engine Room Seal Log¹⁰ is maintained by the C/E. As with other records, some entries are heavily overwritten and whiteout correction fluid was used to make corrections. Both logs are bound with sequentially number pages. Locations of seals are generally identified by a coded system (see attached "Vessel Seal Allocation¹¹"). In addition, a piping system diagram identifies locations where seals are placed.

I spot checked the installed seals against the logs and found that the installation and the logs do not match. In the Master's spare seal log, seal 009252 is listed as having been replaced by 009258. In the C/E's seal log, seal 009252 is listed as having been replaced by seal 009258. Those entries are not correct. Installed on the Port Sludge discharge connection is seal 009258 and installed on the Starboard discharge connection is seal 009252. Listed in the Master's log is seal 009254 replaced seal 009025, however in the C/E's log the seal numbers have been transposed indicating that the 009025 is still installed. Other transposed seal numbers in both logs were also noted. As mentioned in another audit, some seal locations are difficult locate because the precise location, port or starboard for example, is not listed. It is the opinion of this auditor that the seal discrepancies are the result of administrative error. Regardless I recommend that the seal installation be verified for accuracy against the seal logs and corrected as needed. Additionally, as recommended in another audit, recommend the



specific location of the seal be identified in the Engine Room Seal Log in the column labeled and that the use of whiteout correction fluid be discontinued. I also recommend that the accuracy of the seal management program be periodically verified.

9. An operational test of the OWS was scheduled for 13:00 on 24 May 2011 while the vessel was underway. The initial test failed, reportedly due to low level in the bilge tank. Subsequent tests also failed after there was adequate fluid in the tank, likely due to air in the OWS second stage tank. Finally, at about 20:00, after seven hours of troubleshooting, a successful test was carried out, drawing from the BHT and processing through the OWS. The 15-ppm alarm was tested, activating the 3-way valve to the recirculation mode. The oil purge valve was also tested upon start-up. Since the OWS is not frequently used, regular testing in the full operational mode is important. As noted elsewhere in this report, the required monthly test of the OWS is not completed as per the instructions. Completing the test monthly should ensure that the equipment is operating properly and provide OWS operations training and experience.
10. The ORB Part 1 indicates monthly testing of the OWS, as required by the Scope of Work and the EMM Section 5.17 is being carried out. The engineers were unfamiliar with review of the memory card for the OMD 2005 Oil Content Meter (OCM) and consequently comparison between the memory card and the oil record book was not carried out. Recommend that training be completed on memory card review. Review of the Vigilant Enviro-Logger indicated only a limited monthly test is being performed and not a full operational test. During interview with the C/E and 2/E, I learned that the complete test specified in 5.17 is not carried out and the test is limited to the OCM alarm point and operation of the three-way valve. Recommend that the monthly test of the OCM and OWS be completed in accordance with 5.17.

Recommend Ionia Management revise the EMM procedures contained in Section 5.17 and provide additional guidance as necessary to ensure a full operational test is carried out, including testing of the oil purge valves. Failure to complete the monthly test was noted as a deficiency on another vessel.

11. The 2/E is the sole operator of the Oily Water Separator; however, the designation in the Engine Room log book required by 5.16.1.v. has not been completed. Recommend that the designation be completed after the requirements of i-iv have been completed prior to the 2/E operating the OWS. Similarly, the 4/E operates the incinerator however; the designation required by EMM 5.19 has not been completed.
12. SWOMS data for tank soundings was compared against manual tank soundings. The following table shows the results:



	Manual	Manual	SWOMS	SWOMS	Tank Cap.	
	Level in cm	Volume in m ³	Level in cm	Volume in m ³	m ³	% diff.
<u>20-May-11</u>						
BHT	46	3.105	47	3.2	22.7	0.4%
SBOT	42	1.354	46	1.53	13.9	1.3%
Sludge	12	2.264	0.11	2.08	14.6	1.3%
WOT	90	1.26	90	1.22	1.79	2.2%
<u>21-May-11</u>						
BHT	46	3.105	47	3.24	22.7	0.6%
SBOT	42	1.354	46	1.53	13.9	1.3%
Sludge	13	2.41	11	2.16	14.6	1.7%
WOT	96	1.35	95	1.28	1.79	3.9%
<u>22-May-11</u>						
BHT	46	3.105	47	3.26	22.7	0.7%
SBOT	41	1.354	46	1.53	13.9	1.3%
Sludge	15	2.702	15	2.71	14.6	0.1%
WOT	69	0.97	1.47	99.99	1.79	5531.8%*
<u>23-May-11</u>						
BHT	48	3.321	50	3.49	22.7	0.7%
SBOT	42	1.354	46	1.54	13.9	1.3%
Sludge	17	2.994	14	2.54	14.6	3.1%
WOT	70	0.99	1.47	99.99	1.79	5530.7%*
<u>24-May-11</u>						
BHT	30	1.612	29	1.52	22.7	0.4%
SBOT	42	1.354	46	1.53	13.9	1.3%
Sludge	18	3.14	15	2.74	14.6	2.7%
WOT	32	0.45	9	0.13	1.79	17.9%
<u>25-May-11</u>						
BHT	35	2.03	36	2.1	22.7	0.3%
SBOT	42	1.353	46	1.53	13.9	1.3%
Sludge	19	3.286	15	2.73	14.6	3.8%
WOT	28	0.2	9	13	1.79	715.1%*

Two sets of sounding were taken during the audit on 25 March, one hour apart. The soundings were identical and so only one set is included in the table.



The above soundings were taken by the 2/E in the C/E's in my presence. The vessel was at anchor; therefore, there was no movement of the vessel that could skew the soundings. The sounding from the sounding tape was verified for each tank by both myself and the C/E and the value recorded. The printout of the SWOMS data was requested at about the same time the soundings were taken. To satisfy the recommendation from another audit, three manual soundings are taken each time and the average or median value recorded.

As indicated above, the enviro-logger soundings for the WOT is not accurate. According to the C/E, the sending unit's reliability and accuracy deteriorates under varying temperature and humidity conditions. Also according to the C/E, the company is aware of the issue; however it has not been documented. Recommend that the WOT sending unit be repaired as needed. Prior to my departure the C/E submitted a "Defect or Damage Report"¹² reporting that the waste oil tank envirologger gauging indication does not work and the company replied with the repair action plan. Excluding the waste oil tank, the average percentage difference between the manual sounding and the SWOMS was 1.3 %. Daily checks of the Enviro Logger are being carried out and recorded on Form ENV 023. I noted that the ENV 023 "Enviro-logger Checklist" includes, "Verify that the level data of measured tanks corresponds to manual sounding". The checklist dated 21 May 2011¹³ is checked "No" however there is no explanation for discrepancies in the measurements. Recommend that ENV 023 be modified so that an explanation for discrepancies can be included in the form.

13. The FO Overflow Drain Tank (capacity 6.6 m³), the Scavenger Air Box Drain Tank (capacity .4m³), the L/O drain tank (capacity 3.1 m³) and the M/E Stuffing Box drain (capacity 1.9 m³) are not monitored by the SWOMS. The tanks are considered oily residue (sludge) tanks and are listed on the Supplement to the IOPP Certificate under 3.1. Recommend Ionia evaluate whether these tanks should be included in the SWOMS.
14. As was noted on another vessel, the contents of the Oil Transfer Procedures¹⁴, required by 33 CFR 155.720, are not in full alignment with the regulations e.g. the procedures for topping off of tanks is not included. Recommend the procedures be amended to include specific citing of these regulatory requirements.
15. I noted that the sediment is not recorded during ballast tank inspections¹⁵. Prior to the completion of the audit, the C/O conducted training and sediment recording was carried out.
16. According to the C/E, the sounding log is maintained in the C/E's office; however, the Scope of Work requires that it be maintained in the engine control room EMM 9.5 requires that the Tank Sounding Log Book be maintained in the Engine Control Room. Recommend that the sounding log be relocated to the engine control room.



Observations Without Recommendations

1. I reviewed recent Port State Control exam records and found no deficiencies related to the environment:

Country/authority	Date	Environmental Deficiency?
Russia	17 May 2011	No
Russia	2 February 2011	No
Greece	5/4/2011	No
Greece	14/5/2011	No
Black Sea	1/2/2011	No

2. The vessel has a computerized Preventative Maintenance System (PMS) using the Ulysses software. The PMS contains detailed maintenance procedures for the pollution prevention equipment that are in alignment with the manufacturer's manual. Missing maintenance procedures were noted during another audit.
3. Vessel personnel are carrying out weekly and quarterly inspections to comply with the requirements of the EPA's recently adopted National Pollutant Discharge Elimination System (NPDES) Vessel General Permit. The Notice of Intent (NOI) has been filed with the EPA and the current date of coverage was 8 December 2010. The absence of a completed NOI was noted on another vessel.
4. Discharges overboard from the slop tanks are not occurring. All slops from ballast and tank cleaning are sent ashore. The ORB Part II verified this. The overboard line is blanked. Seals are installed on the ODME sampling lines and valves as recommended in another audit and the Scope of Work.
5. The ODME is tested monthly by the C/O. During the audit, the ODME was tested by the C/O in my presence. Instructions contained in the manufacturer's manual were used to perform the tests, with values for ship speed, PPM, and flow rate manually entered. Due to the vessel being at anchor and since a blank flange is installed in the ODME discharge line; an actual discharge test could not be performed. The high PPM and 30 liters/nm exceeded were tested. The discharge prohibited alarm was also verified, along with the operation of the recirculation valve. The C/O was very competent in the ODME operation and knowledgeable of the discharge requirements. Noted in another audit was the failure to record the monthly test in the ORB. As per the Scope of Work, the monthly testing is recorded in the ORB. The oil to water interface is routinely tested by cargo surveyors when discharge is carried out at terminals and was last completed 16 May 2011. The ODME was last calibrated and serviced by shore side technicians from ASIMTECH LTD on 22 May 2011.
6. The vessel maintains a Sounding Log as required by Section IV and Attachment B to the Scope of Work. Excerpts of the Log are attached¹⁶. The remarks section, used to explain significant changes in soundings from one day to the next, e.g. operation of



OWS, incinerator, transfer to slop tank, has been restored in the latest edition satisfying the recommendations made in a previous audit.

7. Section 11 of the EMM details the procedure for crewmembers to report environmental concerns and to remain anonymous if so desired. Crewmembers may report such concerns by calling a toll free telephone number, anonymous reporting email or anonymous reporting letter by post mail. Confidential, not anonymous reporting procedures are also mentioned in the Code of Ethics pamphlet. When I questioned various crewmembers on the reporting procedures and options, all were aware of the reporting procedures. This was noted as a deficiency on another vessel.
8. Hazardous waste such as fluorescent tubes, expired batteries, pyrotechnics, and medicines are being segregated from non-hazardous garbage and disposed of ashore. Shore side receipts specifically listing the categories of hazardous waste being sent ashore are being maintained by the C/O. There are procedures for the disposal of hazardous waste contained in the GMP. Chapter 6 of the EMM contains a table for the proper disposal of both non-hazardous and some categories of hazardous waste.
9. During my review of the Ballast Water Management Plan (BWMP), I found it to be in alignment with the IMO Guidelines and to meet the ship-specific requirements of the U.S regulations. Outdated appendix containing the U.S. ballast water exchange and reporting requirements was noted on another vessel. I questioned the C/O with regard to his knowledge of the U.S. ballast water requirements and he was fully aware and knew the current requirements were contained in the U.S. Code of Federal Regulations (CFR), a copy of which was on board.
10. The vessel maintains a satisfactory Ballast Water Log in the format required by the BWMP, detailing the ballast operations associated with each ballast water tank.
11. Environmental Procedures for Non-Crew Members, Form ENV 022 is implemented aboard. Currently, the form is required to be signed by all non-crewmembers who come aboard, e.g. vendors, surveyors, pilots, agents, etc.
12. The Garbage Management Plan (GMP) is a fleet-wide plan and now includes ship-specific information. The absence of ship specific information was noted as a deficiency on another vessel.
13. Although not required by MARPOL, the weekly voluntary recording of the Bilge Tank ROB in the ORB, using the "I" Code is being carried out as recommended during another audit. This is provided for by MEPC.1 Circ. 640 dated November 4, 2008.
14. The explanation of the role of the CCM noted as not being posted during another audit has been posted.



15. A flexible hose inventory is kept, with hoses stored in the forecastle. Number tags identify each hose, see photos. The absence of tags or labels was noted as a deficiency on another vessel.
16. The check of oil to sea interfaces specified in Attachment B and EMM 5.11 is carried out and logged in the engine logbook.
17. The Vessel Response Plan was approved February 9, 2011 and the vessel may continue to operate under the approval until August 21, 2011.
18. The ongoing audit recommended that ENV 020, "Declaration of Environmental Commitment" be revised. The previous ENV 020 included department specific aspects not applicable to all of the crew. ENV 020 has been revised with a revision date of 8/9/2010 satisfying the recommendation from the ongoing audit. There was no confusion on use of the form as was noted during a previous audit.
19. The ongoing audit recommended that the Declaration of Environmental Compliance, ENV 021 be completed by all crewmembers upon sign-off. EMS 10.6 now requires that Prior to crew member's signing – off , the crew member shall sign the company's "Declaration of Environmental Compliance" stating his compliance with all rules, regulations, legislation and company requirements regarding the environment satisfying the recommendation from the ongoing audit.
20. During my review of the Oil Record Book, Part I, I noted the sludge tank weekly retentions were recorded for seven sludge tanks listed under section 3.3.1 of the Supplement to the IOPP Certificate with the corrected volumes by the DNV surveyor (undated). Failure to include all of the tanks listed under 3.3.1 was noted on another vessel.
21. Oil Record Book Part II was well maintained. Entries were complete, neat and the handwriting was legible.
22. Engine room operations were observed when engine room pumps and machinery were in operation during the period the vessel was at anchor and underway. The engine room was observed to be in very clean condition. No leakages were noted from the main engine. No oil or oily residue was noted in the bilges or bilge wells. The bilge well below the main engine flywheel was dry and free of any oily residues. The bilge wells contained only small quantities of clean water. The Bilge tank was last cleaned on 17 April 2011. No leakages were noted from operating cooling water and general service pumps and there was no evidence of excessive leakages from static pumps. The accumulation of water in the bilge wells appeared to be due to condensation. The purifier room was very clean, with no evidence of leakages from the purifiers. Auxiliary diesel engines and steering gear also were noted to be leak free. See photos.
23. I reviewed the Garbage Record books. The books cover the period from 29 June 2007 until present and were well maintained.



24. The last renewal United States Certificate of Compliance exam, not required outside of United States waters, was issued 20 October 2007. The annual survey due 20 October 2008 was not completed and the Certificate has expired.
25. The State of California Certificate of Financial Responsibility was issued October 1, 2009 and expires September 30, 2011. The United States Certificate of Financial Responsibility was effective 6/29/2010 and expires 6/29/2013.
26. The most recent internal audit noted two items with environmental aspects. That the Garbage Record Book included an entry for a garbage grinder and no grinder is on board and that the bunkering checklist was not completed. Both items were satisfactorily closed out on 17 May 2011.
27. Samples were taken in accordance with Attachment B of the scope of work.

Bilge well port forward	0064738
Bilge well starboard forward	0064772
Bilge holding tank	0064761
Oily Water Sep.	0064751

28. A monthly Environmental Performance Report, Form ENV 004, is submitted to the Ionia office. Included on the form are garbage and hazardous waste disposal quantities. See attached sample report¹⁷.
29. Incineration of sludge and evaporation from the WOST are carried out on a regular basis. See attached ORB excerpts. According to the ORB, the last four sludge incineration operations were as follows:

Date	Liters	Hours	Rate in liters per hour
22-May-11	340	9	37.78
19-May-11	950	33.5	28.36
16-May-11	660	21	31.43
9-May-11	891	18	49.50

The vessel generates about 250 liters of sludge per day. Main engine fuel consumption is about 30 MT/day. Sludge tank capacity, according to the Supplement to the IOPP Certificate, is 42.29 m³. Sludge tank capacities and incinerator capacity appear sufficient to manage the storage and disposal of sludge.

30. A satisfactory test of the incinerator burning sludge and diesel was carried out.
31. The vessel is fitted with a sewage treatment plant (STP) made by DVZ, type DVZ-SKA-20, BIOMASTER, with a rated capacity of 3.70m³ per day. The International Sewage Certificate shows a holding tank with a capacity of 7.4 m³. According to the C/E, the STP is in continuous operation, both in port and at sea, with the direct overboard valve



kept chained and locked in the closed position, except during short periods of maintenance, while at sea. Accordingly, only treated sewage is discharged. According to the C/E, the system is adequate for the complement of the vessel, though the model type indicates capacity for only 27 persons. The Safety Equipment Certificate lists equipment for 28 persons. The complement during the audit was 23 persons. The vessel, however, is also equipped with a vacuum toilet system, which substantially reduces the amount of black water requiring processing.

32. The capacity of the OWS is 5 m³/hour, which appears more than adequate for the currently generated machinery space effluents. According to the ORB, the last three operations of the OWS were as follows:

Date	Quantity processed	Time	Rate
28-Apr-11	3.96	1.30	3.04
30-Mar-11	4.08	0.95	4.29
24-Mar-11	5.81	1.37	4.25

As noted above, there has been no recent processing of oily bilge water through the OWS.

33. The vessel has a Deckma OCM, model OMD 2005, which conforms with requirements of MEPC 107(49). The OCM was last calibrated on 12 April 2011. The Scope of Work requires recalibration at least annually, with copies of the certificates maintained on board.
34. With the installation of the SWOMS, the flushing and sample lines to the OCM have been re-routed through the OWS LockBox, disabling the OMD 2005 manual flushing valve. The OWS LockBox's main function is to provide secured permissive functions that will only allow the 3-way overboard/recirculation valve to be moved to the overboard position once all the permissive functions are met. It will not allow for the mixing of the fresh and sample waters and must sense that enough sample water is flowing to the OCM for at least the last 20 seconds before it will allow control of the 3-way overboard/recirculation valve by the OCM. The flush push button is located on the front of the LockBox sealed cabinet. It is used to activate a solenoid valve in the LockBox which causes a 3-way valve to rotate 180 degrees and put fresh water to the OCM. The pushbutton signal is sent to the main Logger control panel in the ECR where it records that the flushing water has been activated, and then a signal from the control panel is sent to the solenoid in the Lockbox to activate the 3-way flushing valve. The 3-way valve is used to select whether the sample or fresh water is sent to the OCM. The design will not allow mixing of the sample thus ensuring that the sample cannot be diluted by fresh water. The flow switch inside the LockBox senses when sample water is flowing to the OCM and provides a contact closure to the system. It also provides the contact closure to indicate to the Logger that the OWS is running.



35. The manifold trays on deck on either side to contain any leakages or drips during loading, discharging and disconnection of shore connections are adequate relative to the requirements. FO vent containment, bunker line containment and sludge discharge containment are adequate and meets the U.S. Pollution Prevention Regulations.
36. The present engineering staff comprised of C/E, 2/E, 3/E, 4/E, two oilers, one wiper and an electrician appeared adequate to handle the operational, maintenance and repairs workloads for the systems, equipment and components on board. All the staff appeared to be professional and proficient in their knowledge and experience for the job allocated. They are fully aware of the effort needed to minimize the waste streams development. The vessel is certified for UMS operation.
37. Prior to joining MARPOL training is carried out in Manila for crewmembers. Familiarization orientation is completed at sign on and includes environmental topics. Weekly shipboard training, which includes safety, security and environmental training is carried out as per the six-month training schedule. In addition, environmental training is also carried out during monthly Safety Committee Meetings. See attached Safety Committee Meeting Minutes¹⁸ for March and April 2011. Also, the vessel has an active Videotel Computer Based Training¹⁹ with a wide range of topics that includes environmental subjects.
38. The vessel had all the manuals of equipment related to waste stream and type test certificates. Schematic diagrams and pipeline diagrams were on board. Attached are copies of the sewage system and bilge piping diagrams²⁰.

Overall condition of the vessel and waste management equipment is very good. As noted previously, despite the number of Observations with Recommendations noted above, the Scope of Work and EMM requirements are well implemented on board. All the personnel on board cooperated fully during the audit and were sincerely interested and very positive in complying with the environmental procedures.

Respectfully submitted by:

Jon Mahony

Enclosures

¹ Vessel Particulars

² Crew List

³ Compliance System Environmental Audit Checklist

⁴ Photos

⁵ Master's Handover Report dated 29 November 2010

⁶ Chief Engineers Hand Over Report, ENV 023C Dated March 24th, 2011

⁷ Excerpt from Oil Record Book part I

⁸ IOPP and IOPP Supplement



- ⁹ Spare Seal Inventory Instruction and inventory
- ¹⁰ Engine Room Seal Log and instructions
- ¹¹ Vessel's Seals Allocation
- ¹² Defect report 8/11 dated 25 May 2011
- ¹³ ENV 023 Envirologger checklist dated 21 May 2011
- ¹⁴ Oil Transfer Procedure dated 24 March 2011
- ¹⁵ Annual Ballast Tank Inspection dated 3 August 2010 and 24 May 2011
- ¹⁶ Excerpt from Engine Room tank sounding log book
- ¹⁷ ENV 004 – Vessel's Monthly Environmental Performance Report for April 2011
- ¹⁸ Onboard Safety Committee Meeting Minutes for March and April 2011
- ¹⁹ Videotel crew training record sample for 3/O Michael Villanueva
- ²⁰ Sewage system and bilge piping diagram